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OUTLOOK (FEBRUARY — APRIL 2003)

HIGHLIGHTS

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Outlook Highlights

- Northern parts of the sub-region including Mauritius are expected to have normal to above normal rainfall.
- Normal to below normal rainfall is anticipated over southern parts of SADC region.

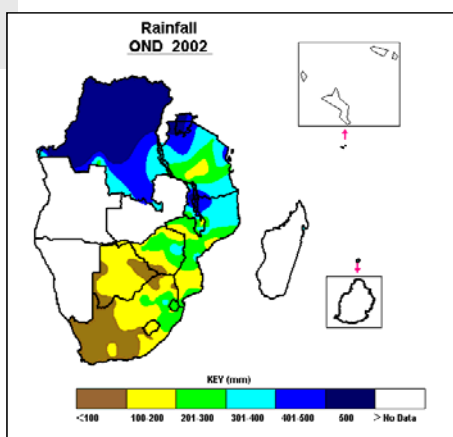


Fig. 1 Rainfall total for OND 2002.



Pictures above indicate flooding in Malawi and Mozambique-January 2003, food crisis in Lesotho - October 2002

Rainfall review over the SADC

region from October to December

Most of the SADC region experienced mainly dry conditions during October and November. This period was characterized by dry spells over the southern and central areas. However, the rainfall situation improved significantly during December over much of the region.

The southern sector had rainfall total amount below 300 mm for OND while the northern sector received total amount from 300 to 600 mm (Fig. 1).

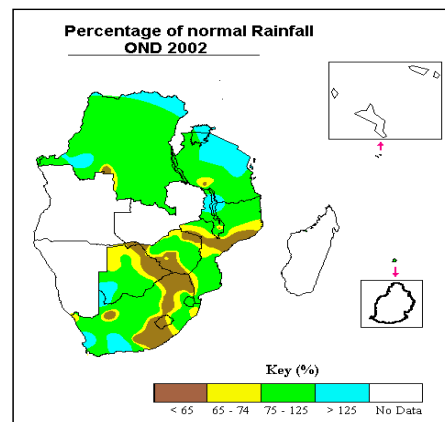


Fig. 2 Percentage of normal Rainfall for OND 02.

Overall, the region received normal rainfall with a few patches in the above normal category in the first half of the rainfall season. Some portions over the eastern interior had below normal rainfall. (Fig. 2).

EL-NIÑO UPDATE

- El Nino reaches mature status
- Moderate El-Niño conditions will continue through March-April 2003.
- SOI index maintained negative values

EL-NIÑO UPDATE - WARM EPISODE CONDITIONS CONTINUE

Forecast models indicate that the moderate warm episode El-Niño will continue through March-April 2003 and is currently in the mature stage. SST anomalies (departures from average) remained greater than $+1^{\circ}\text{C}$ throughout most of the equatorial Pacific and SST anomalies exceeded $+2^{\circ}\text{C}$ between 175°W and 140°W . Positive subsurface temperature departures and a deeper-than-average oceanic thermo-cline prevailed throughout most of the equatorial Pacific, which is consistent with the maturing stage.

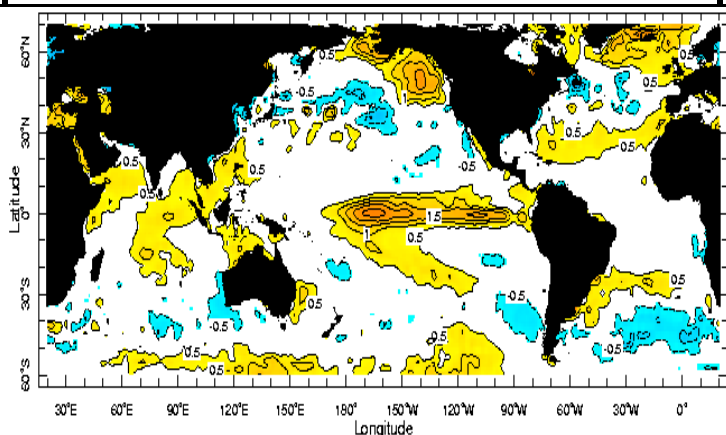


Fig 2. Sea Surface Temperature (SST) anomalies during OND 02

Fig.3 depicts SST anomalies in selected strong ENSO years. The current trace is similar to the 1991/92 El-Niño. This event coincided with extensive drought over most conterminous SADC.

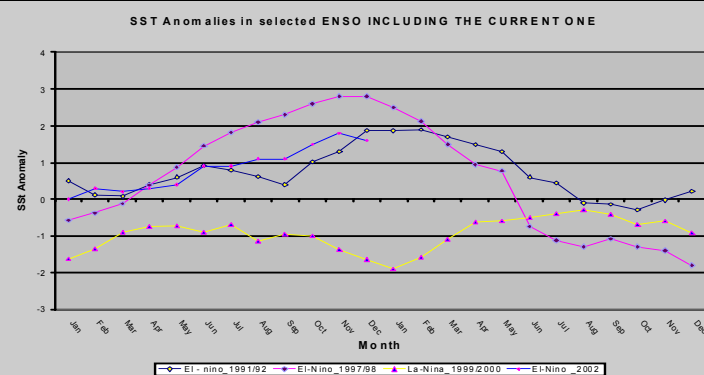


Fig. 3: SST anomalies in Nino 3.4 for 2002, 1991/92, 1997/98 and 1999/20

The current Southern Oscillation Index (SOI) has fluctuated between -0.5 and -1.6 since March 2002 (Fig. 4), with the latest five month running mean of -1.0 . By comparing the SOI in selected years, it can be seen that the current one is similar to the one during 1991/92. The consistence of these similarities in trends make the current El-Niño signals and that for 1991/92 worth noting.

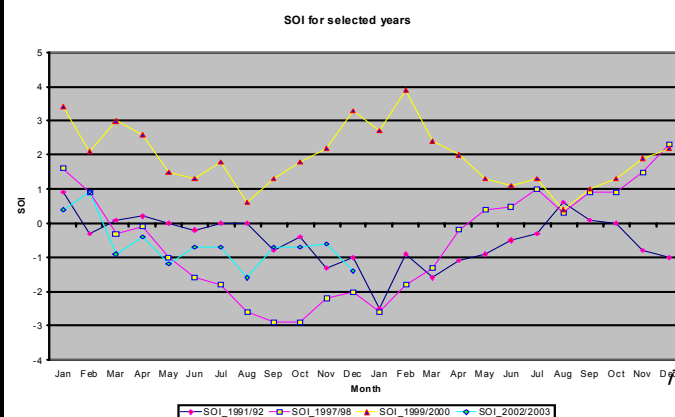


Fig 4 SOI for El Nino years from 1991 to 2002

SADC REGIONAL OCEAN SST 's

Sea surface temperature variation over the Atlantic ocean has been fairly constant with normal condition over the equatorial region and increasing positive trend from the south American coast extending to the coastal of South Africa. South of 30 degrees lies the cold Antarctic Ocean and this has remained negative throughout the first part of the rainfall season.

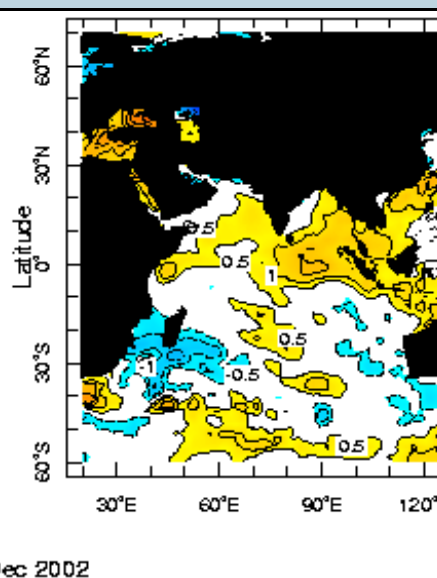


Fig. 5 Indian Ocean SST for week 4th December 2003

SADC REGIONAL OCEAN SST 's cont...

The Indian Ocean has varied considerably especially along the central and western part. The change over the southwestern and central Indian Ocean are due to the fast response of the Indian Ocean to wind stress it is subjected to. The significant variation is illustrated in figures 5 and 6. The warm pool over the central area extending throughout the ocean with maximum (in January) over eastern Madagascar is the important features with anomaly greater than +1.5. This location is the major path of the south equatorial current, which is the source of the Agulhas current. It is the current that flows along the Mozambique Channel and southern African coast carrying the warm surface water towards the Atlantic Ocean. The positive indication is that further warming may occur over the southern African coast resulting in available moisture for precipitation as long as warming continues and favourable wind patterns are observed.

Note: 1) The Agulhas current is the dominating surface current during the second half of the rainy

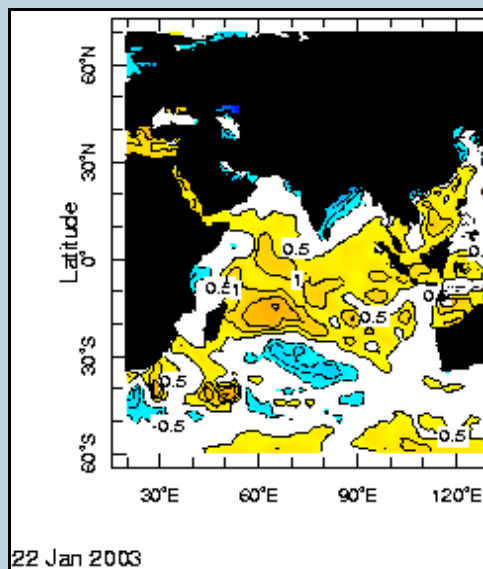


Fig. 6 Indian Ocean SST for week 22nd January 2003

30-YEAR MEAN RAINFALL (1961-1990) FOR FEBRUARY-APRIL 2003

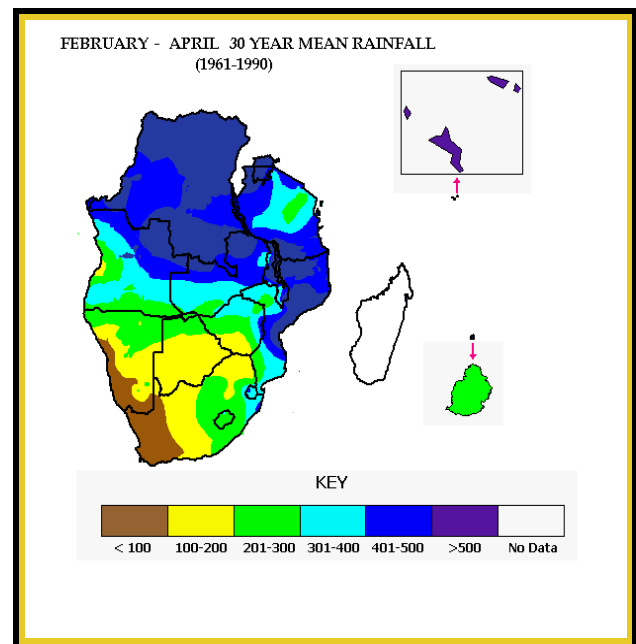


Fig. 7: 30-YEAR MEAN RAINFALL (1961-1990) FOR FEBRUARY-APRIL

The mean total rainfall map shows maxima of above 500 mm over most of DRC and Malawi, northwestern Angola, northern Zambia, extreme southwestern and northern Tanzania, northwestern and central Mozambique and Seychelles. The remainder of the region receives rainfall less than 400 mm, decreasing southwestward up to western South Africa and Namibia where the mean rainfall is below 100 mm. (Fig. 7).

RAINFALL OUTLOOK (FEBRUARY - APRIL 2003)

FORECAST DETAILS

Zone I: (northern and central DRC and northern Tanzania)

Likelihood of Normal to above normal rainfall.

Zone II: (southern DRC, southern Tanzania, Malawi, north-eastern Zimbabwe, northern Mozambique, most of Angola and Zambia)

Likelihood of Normal to above normal rainfall

Zone III: (Most of Zimbabwe, most of Botswana, north-eastern Namibia,, south-eastern Angola, south-western Zambia, southern Mozambique, Swaziland and north-eastern South Africa)

Likelihood of Normal to below normal.

Zone IV: (south western Angola, most of Namibia, south-western Botswana, most of South Africa and Lesotho)

Likelihood of Normal to below normal rainfall.

Zone V: (South western Cape)

Likelihood of Normal to below normal rainfall.

Zone VI: (Mauritius)

Likelihood of Normal to above normal rainfall.

Zone VII: (Seychelles)

Likelihood of Normal rainfall.

Map caption

The number for each zone indicate the probabilities of rainfall in each of the three categories: Above normal, Normal and below normal (Fig. 8). The top number indicates the probability of rainfall occurring in the above normal category, the middle number for normal and the bottom number for the below normal. For example, in the case of Zone I there is a 35% probability for rainfall occurring in the above normal category;

a 40% probability for rainfall in the normal category; and 25% probability for rainfall for a below normal category. It is emphasized that boundaries between zones should be considered as transition zones.

Outlook for February-April 2003

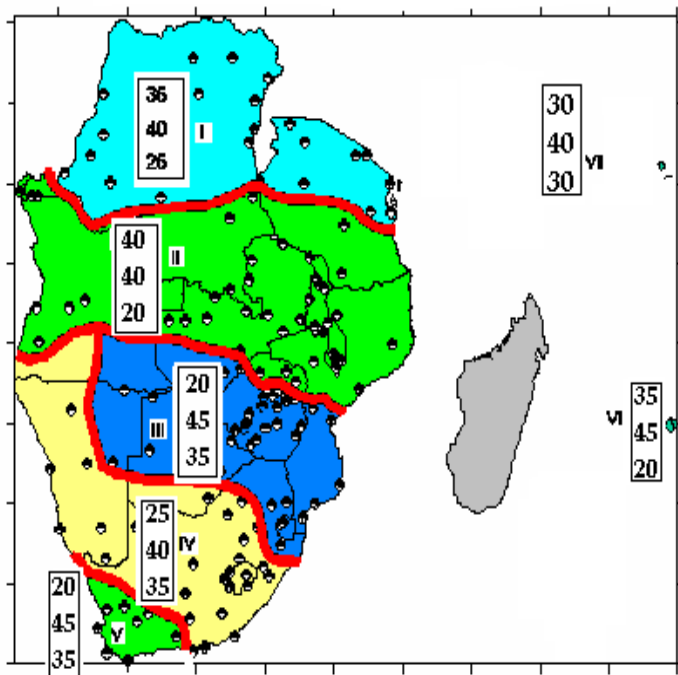


Fig.8 : Rainfall Outlook for February — April 2003

- This update is relevant only for three monthly time scales and relatively large areas. Local to month to month variations may occur due to any changes in projected patterns of, for instance, Sea Surface Temperatures (SSTs) and other indicators.
- The users are strongly advised to contact their NMSs for interpretation of this Outlook, finer details and additional guidance.

Acknowledgement:

- SADC- NMSs
- Global Climate Centres
- WMO